

PART A. INTRODUCTION AND FORMAT

In its Draft EIS, the U.S. Department of Energy (DOE) assessed the potential environmental impacts of constructing and operating an accelerator at the Savannah River Site. This document finalizes the assessment of potential environmental impacts and will be one of the tools DOE utilizes to make the ultimate decision on the primary technology for producing tritium. This document is a record of the changes made to the Draft EIS, which is not being reprinted. All changes can be found in Part C. An explanation of how changes are incorporated follows:

Modifications to the Draft EIS are presented in two ways: (1) complete sections, tables, and figures have been replaced or added with specific references to the Draft EIS, and (2) text or elements of tables in the Draft EIS have been modified and shown as **bolded text**. In both cases the change is preceded by a text box that explains the change, why the change was made, and references the pertinent section of the Draft EIS. The text box is followed by the applicable modification. As mentioned, changes to text and table information are **bolded** and reproduced with an adequate amount of the applicable material in the Draft EIS to place the change in context. As a result, the reader should not have to refer to the Draft EIS to understand the change. In the case of text and tables that replace corresponding sections of the Draft EIS, bolding is not used. An example of change is presented in Section A.1 below.

A.1 Introduction

EVENTS SINCE THE DRAFT APT EIS

Since issuance of the Draft EIS in December 1997, several events have occurred and decisions have been made that influenced the preparation of the Final APT EIS. Two other draft EISs related to the tritium supply mission were issued, the Tritium Extraction Facility (TEF) EIS and the Commercial Light-Water Reactor (CLWR) EIS. These three documents are closely interrelated. The proposed action described in the CLWR EIS is now the "No-Action" alternative in this EIS. Conversely, the APT is the "No-Action" alternative in the CLWR EIS.

In August 1998, the Department decided to make its primary technology decision prior to issuing the Final EISs. On December 22, 1998, Secretary of Energy Bill Richardson announced that CLWRs would be the primary tritium supply technology. The Secretary designated the Watts Bar Unit 1 reactor near Spring City, Tennessee, and Sequoyah Unit 1 and 2 reactors near Soddy-Daisy, Tennessee as the preferred CLWRs for tritium production. The Secretary designated the APT as the backup technology for tritium supply. Selection of the CLWR option reaffirms the December 1995 Tritium Supply and Recycling PEIS ROD to construct and

operate a new tritium extraction capability at the SRS. The preferred alternative is the No Action alternative, consistent with its role as the backup technology. Under No Action, DOE would complete key research and development milestones for the accelerator at SRS (but not construct the facility) with the following design and support features: klystron radiofrequency power tubes, the use of superconducting equipment, helium-3 feedstock material, and mechanical draft cooling towers with river water makeup.

The *Final Accelerator Production of Tritium at the Savannah River Site Environmental Impact Statement* (APT EIS) has been prepared consistent with the President's Council on Environmental Quality regulations (40 CFR Part 1500-1508) and Department of Energy Procedures (10 CFR Part 1021). Because DOE received few comments on the Draft EIS (DOE/EIS-0270D), it is not reprinting a revised draft as the Final EIS, as is typically done. Rather, DOE is finalizing the APT EIS by reference to the Draft EIS and is issuing this document as a record of changes made pursuant to 10 CFR Part 1503.4.

This EIS presents the assessment of potential environmental impacts of siting and technology alternatives of an APT facility at the Savannah River Site. The EIS also provides more environmental information on the APT than was presented in the Tritium Supply and Recycling

PEIS. A complete revised Summary has also been prepared and is included in this Final EIS.

Modifications to the Draft APT EIS were made for the following reasons:

- To incorporate responses to comments received during the public comment period
- To update or clarify factual information presented in the Draft EIS
- To reflect the evolution of APT design work that has progressed since the Draft EIS was issued

This document focuses on changes which are of importance to the decision maker and the public. It does not alter or correct minor editorial matters in the Draft, nor correct minor technical information, unless those changes are warranted because they would alter the meaning or change the conclusions drawn. Table A-1 summarizes the changes made and denotes which changes are in response to which comments.

Since issuance of the Draft EIS, the Department has investigated a design variation for the discharge of cooling water. This variation would result in mitigating potential ecological impacts described in the Draft EIS and responds to several comments received during the public comment period. Under this variation, the discharge of cooling water would go to Pond C, bypassing pre-cooler Ponds 2 and 5 via an existing discharge channel.

The Draft EIS introduced two other design variations, a modular or staged accelerator configuration, and combining tritium extraction facilities with the APT. The Draft EIS was based on the best available information for assessing the impacts of either design variation; this document uses additional information to quantify to the extent possible, the potential impacts associated with these designs pursuant to the commitment made in the Draft EIS.

A.2 Format

The following is an example of how the changes are presented.

[Chapter 2, Section 2.3.5 modification to the Draft APT EIS]

In comment L2-04, the commenter questioned why DOE did not investigate existing industrial areas as potential sites for the APT. In its response, the Department indicated it did not believe existing industrial sites are feasible for a number of reasons. Consequently, the Department is clarifying the description of its siting process.

Page 2-15, 1st column, 1st through 2nd paragraphs are replaced with the following:

DOE assumed the APT complex would require approximately 250 acres of land with a footprint 6,560 feet long by 1,640 feet wide. The area requirements would not vary much with any combination of technologies or design options described in this chapter.

With the land requirements established, the next phase of the screening process was to develop exclusionary criteria (disqualifying conditions). Examples of these criteria include avoiding adverse impacts to threatened and endangered species, avoiding impacts to wetlands and sensitive ecosystems, and proximity to seismic faults. Wike et al. (1996) contains a complete listing of these exclusionary criteria. Seven potential sites (numbered 1-7) were initially identified. Two sites (numbered 5 and 7) were subsequently eliminated due to the presence of disqualifying conditions (proximity to seismic faults). One site (number 8) was added based on a request to examine a site in the vicinity of **the industrialized A- and M- Areas**. Although not explicitly used as exclusionary criteria, existing industrially developed areas **were examined and dismissed** as feasible sites because the APT, **due to its space requirements, would conflict with** (1) the presence of existing structures, (2) the presence of non-operating structures that would require extensive decontamination and decommissioning (D&D) prior to site preparation, or (3) the presence of active environmental restoration activities.

Table A-1. Modifications to Chapters 1 - 7 of the Draft APT EIS.

Sections of the Draft APT EIS Modified	Location in the Draft EIS	Location in the Final EIS	Link to comment (if applicable)	Subject of change
Chapter 1, Section 1.5	Page 1-5, 2 nd column, 2 nd through 4 th paragraphs	Page C-1	L1-02	Tritium supply implementing strategy
	Page 1-6, 1 st column, 1 st through 2 nd paragraphs	Page C-2		TEF No Action alternative
	Page 1-7, 1 st column, after 2 nd paragraph	Page C-2		Plutonium residues and scrub alloys management
	Page 1-7, 1 st column after 2 nd paragraph	Page C-3		Surplus plutonium disposition
Chapter 2, Section 2.1	Page 2-2, 1 st column, 3 rd through 4 th paragraphs	Page C-3		APT No Action alternative
Chapter 2, Section 2.3.5	Page 2-15, 1 st column, 1 st and 2 nd paragraphs	Page C-4	L2-04	APT site selection
Chapter 2, Section 2.5	Page 2-21, 2 nd column through page 2-25, 2 nd column, 3 rd paragraph	Page C-5		APT design variations
Chapter 2, Section 2.7	Page 2-26, 1 st column, 1 st paragraph through page 2-39	Page C-5		Comparison of environmental impacts
Chapter 3, Sections 3.3.1.1, 3.3.1.2, and 3.4.2	Page 3-6, 1 st column, 3 rd paragraph and Figure 3-4 on page 3-7	Page C-26		APT footprint
	Page 3-8, 1 st Column, 1 st paragraph, 5 th through 9 th lines, Figure 3-5 on page 3-9, and Table 3-1 on page 3-10	Page C-26		APT footprint
	Page 3-44, 1 st Column, 1 st paragraph, lines 2 through 15, and Figures 3-16 and 3-17 on pages 3-47 and 3-48	Page C-26		Savannah River water quality
Chapter 3, Section 3.3.2.1	Page 3-18, 2 nd column, 2 nd paragraph and Table 3-5, page 3-21	Page C-33		Non-radiological air quality
Chapter 3, Section 3.3.4.1	Page 3-28, 2 nd column, 2 nd paragraph and Table 3-8, page 3-29	Page C-33		Radiological air quality
Chapter 3, Section 3.3.4.2	Page 3-28, 2 nd column, 4 th paragraph and Table 3-9, page 3-29	Page C-33		Radiation doses at SRS
Chapter 3, Section 3.4.1	Page 3-43, 1 st column, 1 st paragraph and Table 3-11, page 3-43	Page C-33		Radiation doses at SRS
Chapter 3, Section 3.4.5	Page 3-54, 2 nd column, 2 nd paragraph, line 8 through line 3 in the 1 st column on page 3-55	Page C-36	L2-05 and L2-06	Threatened and endangered species
	Page 3-55, 1 st column, 2 nd paragraph	Page C-37	L2-05 and L2-06	Threatened and endangered species

Table A-1. (Continued).

Sections of the Draft APT EIS Modified	Location in the Draft EIS	Location in the Final EIS	Link to comment (if applicable)	Subject of change
Chapter 4	Page 4-1, 2 nd column, 2 nd and 3 rd paragraphs	Page C-37		Concrete batch plants and construction debris landfill
	Page 4-2, 2 nd column, 4 th paragraph through page 4-3, 1 st column, 1 st paragraph	Page C-39		No Action impacts
Chapter 4, Section 4.1.1.2	Page 4-4, 2 nd column, 4 th paragraph through 1 st paragraph on page 4-5	Page C-42	L4-03	Groundwater activation
Chapter 4, Section 4.1.2.1	Page 4-5, 2 nd column, text box	Page C-43		Section 316(a) demonstration
Chapter 4, Section 4.1.2.2	Page 4-6, 2 nd column, Tables 4-1 and 4-2, page 4-7	Page C-43		Water borne source terms
Chapter 4, Section 4.1.3.3	Page 4-16, 2 nd column, 3 rd paragraph and Table 4-11, page 4-18,	Page C-43		Maximum non-radiological concentrations
Chapter 4, Section 4.1.3.4	Page 4-19, 2 nd column, 9 th paragraph through page 4-22, 1 st column, 4 th paragraph, including Tables 4-12 and 4-13, pages 4-20 and 4-21	Page C-46		Accelerator source terms
Chapter 4, Section 4.1.4	Page 4-22, 2 nd column, 3 rd paragraph	Page C-48		Existing SRS River Water System
Chapter 4, Section 4.1.5	Page 4-25, 2 nd column, text box	Page C-49	L3-05 and L4-04	APT waste categorization
	Page 4-25, 1 st column, 1 st paragraph and Tables 4-15 and 4-16, pages 4-26 and 4-27	Page C-49		APT waste generation estimates
Chapter 4, Section 4.1.5	Page 4-25, 2 nd column, 4 th paragraph through page 4-27, 1 st column, 1 st paragraph and Table 4-17, page 4-18	Page C-49		APT waste generation estimates
Chapter 4, Section 4.2.1.2	Page 4-36, 1 st column, 4 th paragraph and Table 4-22, page 4-37	Page C-49		Radioactive source terms
Chapter 4, Section 4.2.2.4	Page 4-56, 1 st column, 3 rd paragraph	Page C-51	L2-05 and L2-06	Threatened and endangered species
Chapter 4, Section 4.4.2.5	Page 4-74, 2 nd column, 2 nd paragraph, lines 16 through 28	Page C-53	L2-01 and L4-01	Coal-fired health risks
Chapter 5	Page 5-1, 1 st column, 1 st paragraph through page 5-2, 1 st column	Page C-54		Cumulative impacts
Chapter 5, Section 5.1	Page 5-2, 2 nd column, 3 rd and 4 th paragraphs, and Table 5-1 on page 5-3	Page C-56		Radiological doses

Table A-1. (continued).

Sections of the Draft APT EIS Modified	Location in the Draft EIS	Location in the Final EIS	Link to comment (if applicable)	Subject of change
Chapter 5, Section 5.2	Page 5-3, 2 nd column, 1 st paragraph and Table 5-2 on page 5-4	Page C-58		Non-radiological emissions
	Page 5-4, 1 st column, sentences 1 and 2 and Table 5-3 on page 5-5	Page C-58		Radiological doses
	Page 5-4, 2 nd column, after 1 st paragraph	Page C-58	M1-03 and M1-10	Greenhouse effect
	Page 5-4, 2 nd column, 2 nd paragraph through page 5-6, 1 st column, 1 st paragraph and Table 5-4 on page 5-5	Page C-58		Cumulative waste volumes
Chapter 5, Section 5.4	Page 5-7, Table 5-5 and Table 5-5a added	Page C-61		Cumulative electricity generation
Chapter 5, Section 5.5	Page 5-9, Table 5-6	Page C-61		Cumulative health effects
Chapter 5, Section 5.7	Page 5-10, 1 st column, 2 nd paragraph through 2 nd column, 2 nd paragraph and Table 5-7 on page 5-11	Page C-64		Reasonably foreseeable actions
Chapter 6, Section 6.2	Page 6-2, 1 st column, 2 nd paragraph	Page C-64		Resource commitments
Chapter 7, Section 7.1	Page 7-6, 1 st column, after 1 st paragraph	Page C-66		SC solid waste Management act
Chapter 4, Sections 4.5.1, 4.5.2, 4.5.3, and 4.6	Addendum	Page D-1		Design variations and mitigation actions
Miscellaneous modifications/additions to references				
Additions to Chapter 1 references	Page 1-10	Page C-66		
Additions to Chapter 2 references	Page 2-40	Page C-66		
Additions to Chapter 3 references	Page 3-65	Page C-66		
Additions to Chapter 4 references	Page 4-82	Page C-68		
Additions to Chapter 5 references	Page 5-12	Page C-69		

Table A-1. (continued).

Sections of the Draft APT EIS Modified	Location in the Draft EIS	Location in the Final EIS	Link to comment (if applicable)	Subject to change
Miscellaneous modifications/corrections				
Chapter 2, refer- ences	Page 2-40	Page C-69		
Chapter 3, refer- ences	Page 3-71	Page C-69		
Chapter 4, Section 4.1.1.1	Page 4-3	Page C-69		
Chapter 4, Section 4.1.5 references	Pages 4-23 through 4-29	Page C-69		
Chapter 4 Section 4.2.2.3	Page 4-54	Page C-69		
Chapter 4, refer- ences	Page 4-85	Page C-70		

A.3 Organization of the Final EIS

The Final EIS has four main parts. Part A, the introduction, is what you are now reading. Part B summarizes the comments received during the public comment period and provides responses to those comments. Part B also contains reproductions of the letters received, and transcriptions of the telephone comments left with the DOE message center. Part C presents the modifications to the Draft EIS in the format described previously. As mentioned, the changes are made to (1) incorporate responses to comments received during the public comment period and (2) update or clarify factual information. All changes to technical information in the Draft EIS, Chapters 1 through 7 can be found in Part C. Part D focuses on the three design variations described in Part A.1 and potential mitigation actions. The information is incorporated as Section 4.5 of Chapter 4 – Environmental Impacts – of the Draft EIS. The section also compares the design variations to the baseline accelerator (Preferred Alternative) described in the Draft EIS.

The final also contains the transcripts of the public meetings held on January 13, 1998, in North Augusta, South Carolina, and the South Carolina Clearing House forms.

Interested persons may obtain a copy of this document or the Draft APT EIS by calling 1-800-881-7292, sending e-mail to nepa@SRS.gov, or writing to Andrew R. Grainger, U.S. Department of Energy, Savannah River Operations Office, Aiken, South Carolina 29802. Copies of both documents, as well as the *Final Programmatic Environmental Impact Statement for Tritium Supply and Recycling (DOE/EIS-0161)*, can be found in DOE's public reading rooms. The reading room for the Savannah River Site is at the Gregg-Graniteville Library, University of South Carolina-Aiken Campus, Aiken, South Carolina 29801, telephone 803-641-3465.